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(54) **LASER-BASED ACOUSTO-OPTIC UPLINK COMMUNICATIONS TECHNIQUE**

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(58) **Field of Search** 367/134, 3, 1

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(57) **ABSTRACT**

An apparatus for enabling acousto-optic communication comprising an in-water platform comprising means for emitting an acoustic signal to an acousto-optic interaction zone, an in-air platform comprising the ability for transmitting a first optical interrogation beam, the ability for receiving a portion of the first interrogation beam and a second laser beam formed from the reflection of the first interrogation beam off of the acousto-optic interaction zone, the ability for measuring and outputting a plurality of optical interferences between the portion of the first interrogation beam and the second reflected beam, and a signal converter receiving as input the plurality of optical interferences and outputting an electrical signal representing the received acoustic telemetry signal at the interrogation point at the air-water interface.

9 Claims, 2 Drawing Sheets